

Station #6 (section 2.6 and 2.7)

Sketch a graph of the rational function by hand. Check for intercepts and vertical, horizontal, and slant asymptotes. Check yourself with a graphing calculator.

a) $f(x) = \frac{3x}{x^2 - x - 2}$

b) $f(x) = \frac{x^3}{2x^2 - 8}$

c) $f(x) = \frac{3x^2 + x - 5}{x^2 + 1}$

d) $f(x) = \frac{2x^2 + 3}{x^2 + x + 3}$

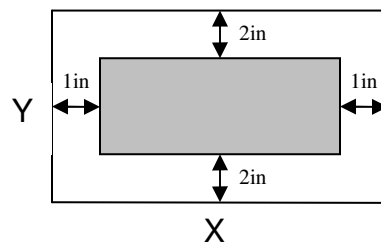
e) $f(x) = \frac{2x^3}{x^2 + 1}$

f) $f(x) = \frac{2x^2 + 7x + 3}{x + 1}$

Station #7 (section 2.7)

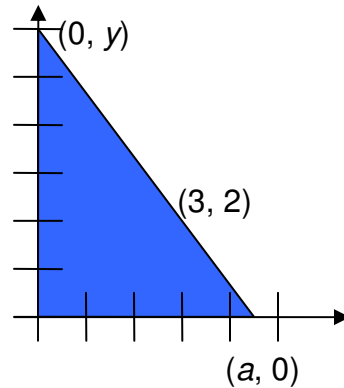
A page that is x inches wide and y inches high contains 30 square inches of print. The top and bottom margins are 2 inches and the side margins are each 1 inch.

- a) Find a function for the total area of the page.
- b) What is the domain?
- c) Graph the function by hand using what you know about asymptotes.
- d) Find the x so that the amount of paper is minimized. Find it graphically.



Station #8 (section 2.6 & 2.7)

A right triangle is formed in the first quadrant by the x-axis, the y-axis, and a line segment through the point $(3, 2)$. Find an equation for the area of the triangle in terms of x and then use your calculator to find the value of x that would minimize the area.



Station #9 (section 2.6 & 2.7)

A rectangular region of length x and width y has an area of 500 square meters.

- Write the width y as a function of x .
- Determine the domain of the function based on the context of the problem.
- Determine the width of the rectangle when $x = 30$ meters.

Answers:

6) Check with your graphing calculator

7)

a) $f(x) = (2x(2x + 11))/(x - 2)$

b) Domain $(2, \infty)$

c) Check with your graphing calculator

d) Max area, 5.9 x 11.8 inches

8) $x = 6$, Area = 12

9) a) $y = 500/x$

b) $(0, \infty)$

c) $y = 16$ and $2/3$